

# Customer Value Leadership Award

Automotive User Interface/User Experience (UI/UX) Software



## Contents

Background and Company Performance .....	3
<i>Industry Challenges</i> .....	3
<i>Customer Impact and Business Impact</i> .....	4
<i>Conclusion</i> .....	6
Significance of Customer Value Leadership .....	7
Understanding Customer Value Leadership .....	7
<i>Key Benchmarking Criteria</i> .....	8
Best Practice Award Analysis for The Qt Company .....	8
<i>Decision Support Scorecard</i> .....	8
<i>Customer Impact</i> .....	9
<i>Business Impact</i> .....	9
<i>Decision Support Matrix</i> .....	10
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices .....	11
The Intersection between 360-Degree Research and Best Practices Awards.....	12
<i>Research Methodology</i> .....	12
About Frost & Sullivan .....	12
Copyright .....	12

## Background and Company Performance

### *Industry Challenges*

With every new vehicle launch and model refresh, the automobile is becoming increasingly connected, transforming the mobility landscape and expanding the capability of vehicles beyond serving solely as a mode of transportation. To support this evolution, major automakers include digital interfaces in their vehicle line-ups, which help consumers fully utilize connected car features. These digital interfaces, which include infotainment systems, head-up displays (HUDs), instrument clusters, and passenger seat screens, have gained significant importance for upholding the in-vehicle user experience.

Once inside their car, customers demand a seamless continuation of the digital experience they are accustomed to from their smartphones and the connected electronics industry, which is causing a proliferation of in-cabin displays. However, OEMs are struggling to build these displays that need to be visually appealing, functionally safe, and consistent in performance. Another important trend has been the integration of multiple screens with different functionalities. The integration has led to considerable complexities and lengthy, expensive software development processes. However, to capitalize on the inevitable intelligence of connected and autonomous vehicles, integrated digital interfaces will play a pivotal role in next-generation models.

The crux of today's automotive landscape is incorporating dynamic innovation without increasing the development time and cost associated with it. To integrate digital interfaces or solutions in vehicles, developers have to write plenty of software codes. This not only increases development time but also cost, which discourages OEMs from commercially adopting connected vehicles or platforms. To work around this issue, OEMs have resorted to software companies to develop short-term solutions while upholding the desired vehicle safety, personalization, and convenience features.

Another issue faced by OEMs and Tier I suppliers in the automotive ecosystem relates to developing premium-rich features and immersive user interfaces (UIs) needed to deliver captivating in-vehicle experiences. This digital evolution presents a considerable challenge and an opportunity for software solution providers. However, to support the OEMs and Tier I suppliers in developing innovative solutions catering to customers' needs, they will also have to maintain costs and work to not overly complicate the software. Ultimately, software solution providers will have to inject as much innovation and functionality into their UI as possible and make sure development processes are not unnecessarily lengthened.

The major competitive factors for software suppliers will be to reduce development costs for their partners and support faster time-to-market in addition to providing flexibility to develop, customize, and update software solutions. Therefore, specialized software suppliers and third-party vendors will have an opportunity to engage with OEMs and Tier I suppliers to deliver digital solutions that accommodate the requirements of multiple passenger profiles.

## *Customer Impact and Business Impact*

### **Customer Buying Experience**

The Qt Company identified the common UI challenges haunting the automotive industry and mitigates them by providing a low-cost, innovative software platform. The Qt Company focuses on developing software for unifying a vehicle's multiple interfaces including clusters, in-vehicle information systems (IVISs), and HUDs into an integrated digital cockpit at the lowest total cost of ownership (TCO) possible. The company emphasizes its collaboration model with automotive partners in developing solutions that address the industry's unique needs and constraints. These collaborations have helped the company maintain an edge over competitors in terms of its differentiated portfolio of solutions.

Working with its technology partners, Qt has developed a unified technology offering that includes Qt Automotive Suite, Qt Safe Renderer, and Qt Design Studio. Qt Automotive Suite is a collection of software solutions in which the company regularly introduces new and enhanced components catering to emerging automaker and customer demands. It is built in collaboration with company partners KDAB and Luxoft. The Qt Company consistently enhances its products so that they support the evolving, high-quality requirements of the automotive industry. Notably in 2018, the company launched Qt Safe Renderer 1.0 for meeting automotive-specific safety-critical compliance requirements. This has helped The Qt Company achieve Certification for Functional Safety: ISO 26262 ASIL D, a highly critical certification to showcase software capability readiness to separate safety-critical functionalities from non-safety-critical ones.

Fundamentally, what makes The Qt Company solutions attractive is the consistency and functionally safe user experience (UX) delivered through its comprehensive infrastructure of libraries, tooling, hardware adaptation, and ready-made solutions. The Qt Company constantly focuses on industry developments and is well attuned to market changes.

As Python gained significant popularity in the in-vehicle application framework, the company introduced a Qt for Python platform in January 2019. What largely differentiates The Qt Company from its competitors is its attention to assisting customers in adapting new solutions. For instance, with the launch of Qt for Python platform it also provided enhanced GUI and data visualization tools to substantially simplify the creation of innovative and immersive UIs for Python applications. To further shorten the development process and improve UIs for developers and customers, the company provides access to Qt's professional support services. In addition to this, by understanding the industry need for 3D user interface in digital cockpits, the company has been proactively involved in developing a high-performance 3D framework and tooling support system. Overall, the competitive takeaway here is that by enabling its customers with new technologies and assistive tools, it delivers the greatest value to OEMs and tier I suppliers.

Frost & Sullivan believes that The Qt Company has demonstrated a unique product leadership approach by expanding its portfolio's reach and providing a unified software platform and has empowered automotive OEMs and tier 1 suppliers to focus on UX creation, while it builds the technology infrastructure.

### **Customer Ownership Experience and Brand Equity**

The Qt Company's unique approach, which sets it apart from the competition, is to offer an interactive platform for its customers, partners, and stakeholders from across industries, including automotive. For last few years, the company has been organizing Qt World Summit where industry leaders, executives, managers, and important software developers attend the event. In 2018, The Qt Company hosted Qt World Summits across geographies, one in Boston and the other in Berlin. In collaboration with its partners, the company shares keynotes and upcoming developments in its new solutions, including demos and training sessions for deployment scenarios in customers' products. This approach offers early insights to ecosystem stakeholders regarding the company's major innovations. For instance, in Qt World Summit 2018, it demonstrated technology use cases for customers and partners including Harman, Ford Motors, ICS, and KDAB.

However, the main purpose behind the event is for customers to share insights on how using Qt's technology has played a significant role in achieving a superior UX and faster time-to-market solutions. This approach is unique because customers are considered collaborators in an Intermodal Collaboration Community. The annual summit is also the setting for in-depth technical talks on the latest advancements in technology and the sharing of best practices, which sets a precedent in developing innovative solutions and enriching UX.

The concept of Qt Community, within which members can easily share customer experience, best practices, and ideas, is the cornerstone from which the exceptional UX was built. Frost & Sullivan finds these practices as exemplary of a true industry leader and expects they will enable robust brand recognition for The Qt Company.

### **Customer Acquisition and Growth Potential**

The Qt Company has built a strong global customer base through its robust sales network, excellent customer support, and targeted marketing efforts. With increasing demand for automotive software solutions, the company has increased its product portfolio to ensure continued focus on business growth. By understanding the market's evolving requirements, Qt introduced Qt Design Studio in 2018, a UI prototyping and development tool that makes collaboration between designers and developers easier and more efficient. Qt UI Design Tools help designers and developers work simultaneously on the UI framework and engage in live-testing their design prototypes. The payoff is that the Design Studio reduces the number of feedback loops and leads to shorter time-to-market in developing UIs.

With the automotive market evolving rapidly, the company's ability to address the key market challenges with its deep expertise and experience has further helped establish and accelerate its growth. By delivering an impressive array of software capabilities, The Qt Company has garnered a worldwide customer base that includes major OEMs such as, Daimler AG, and Peugeot as well as Tier I suppliers such as Harman, Neusoft, Parrot Faurecia, Magneti Marelli, and LG Electronics. This impressive clientele reiterates the warm acceptance of The Qt Company's solutions and proves that its modular approach is well received by the industry.

### *Conclusion*

Frost & Sullivan research confirms that technological expertise and close customer collaboration have enabled The Qt Company to offer valuable customer service in the global automotive software UI solutions market. Responding to increasing demand for UIs, performance, and intelligence in automotive next-generation models, The Qt Company takes a strong position in the market by providing a spectrum of high-performance automotive software solutions including Qt Automotive Suite, Qt Safe Renderer, Qt Design Studio, and the recently introduced Qt for Python. Furthermore, The Qt Company's collaboration model with industry players coupled with customer engagement in its annual Qt World Summit have helped it focus on continuous development, provide superior products with quality performance and, ultimately, deliver unrivaled customer value.

For its strong overall performance, The Qt Company has earned Frost & Sullivan's 2019 Customer Value Leadership Award in the Global Automotive User Interface/User Experience (UI/UX) Software industry.

## Significance of Customer Value Leadership

Ultimately, growth in any organization depends on customers purchasing from a company and then making the decision to return time and again. Satisfying customers is the cornerstone of any successful growth strategy. To achieve this, an organization must be best in class in 3 key areas: understanding demand, nurturing the brand, and differentiating from the competition.



## Understanding Customer Value Leadership

Customer Value Leadership is defined and measured by 2 macro-level categories: Customer Impact and Business Impact. These two sides work together to make customers feel valued and confident in their products' quality and performance. This dual satisfaction translates into repeat purchases and a lifetime of customer value.

## Key Benchmarking Criteria

For the Customer Value Leadership Award, Frost & Sullivan analysts independently evaluated Customer Impact and Business Impact according to the criteria identified below.

### Customer Impact

- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

### Business Impact

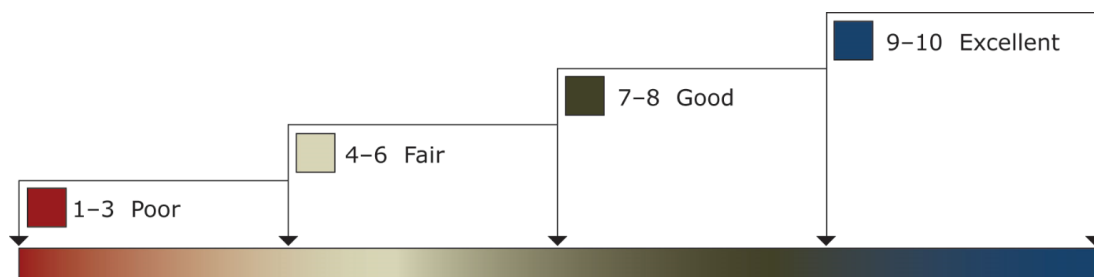
- Criterion 1: Financial Performance
- Criterion 2: Customer Acquisition
- Criterion 3: Operational Efficiency
- Criterion 4: Growth Potential
- Criterion 5: Human Capital

## Best Practices Award Analysis for The Qt Company

### Decision Support Scorecard

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows research and consulting teams to objectively analyze performance according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation. Ratings guidelines are illustrated below.

#### RATINGS GUIDELINES



The Decision Support Scorecard considers Customer Impact and Business Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criterion are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.



The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, Frost & Sullivan has chosen to refer to the other key participants as Competitor 1 and Competitor 2.

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
<b>Customer Value Leadership</b>	Customer Impact	Business Impact	Average Rating
<b>The Qt Company</b>	<b>9</b>	<b>9</b>	<b>9</b>
Competitor 1	8.25	8	8.12
Competitor 2	7.5	7.2	7.35

### *Customer Impact*

#### **Criterion 1: Price/Performance Value**

Requirement: Products or services offer the best value for the price, compared to similar offerings in the market.

#### **Criterion 2: Customer Purchase Experience**

Requirement: Customers feel they are buying the optimal solution that addresses both their unique needs and their unique constraints.

#### **Criterion 3: Customer Ownership Experience**

Requirement: Customers are proud to own the company’s product or service and have a positive experience throughout the life of the product or service.

#### **Criterion 4: Customer Service Experience**

Requirement: Customer service is accessible, fast, stress-free, and of high quality.

#### **Criterion 5: Brand Equity**

Requirement: Customers have a positive view of the brand and exhibit high brand loyalty.

### *Business Impact*

#### **Criterion 1: Financial Performance**

Requirement: Overall financial performance is strong in terms of revenue, revenue growth, operating margin, and other key financial metrics.

#### **Criterion 2: Customer Acquisition**

Requirement: Customer-facing processes support the efficient and consistent acquisition of new customers, even as it enhances retention of current customers.

#### **Criterion 3: Operational Efficiency**

Requirement: Staff is able to perform assigned tasks productively, quickly, and to a high quality standard.

#### **Criterion 4: Growth Potential**

Requirements: Customer focus strengthens brand, reinforces customer loyalty, and

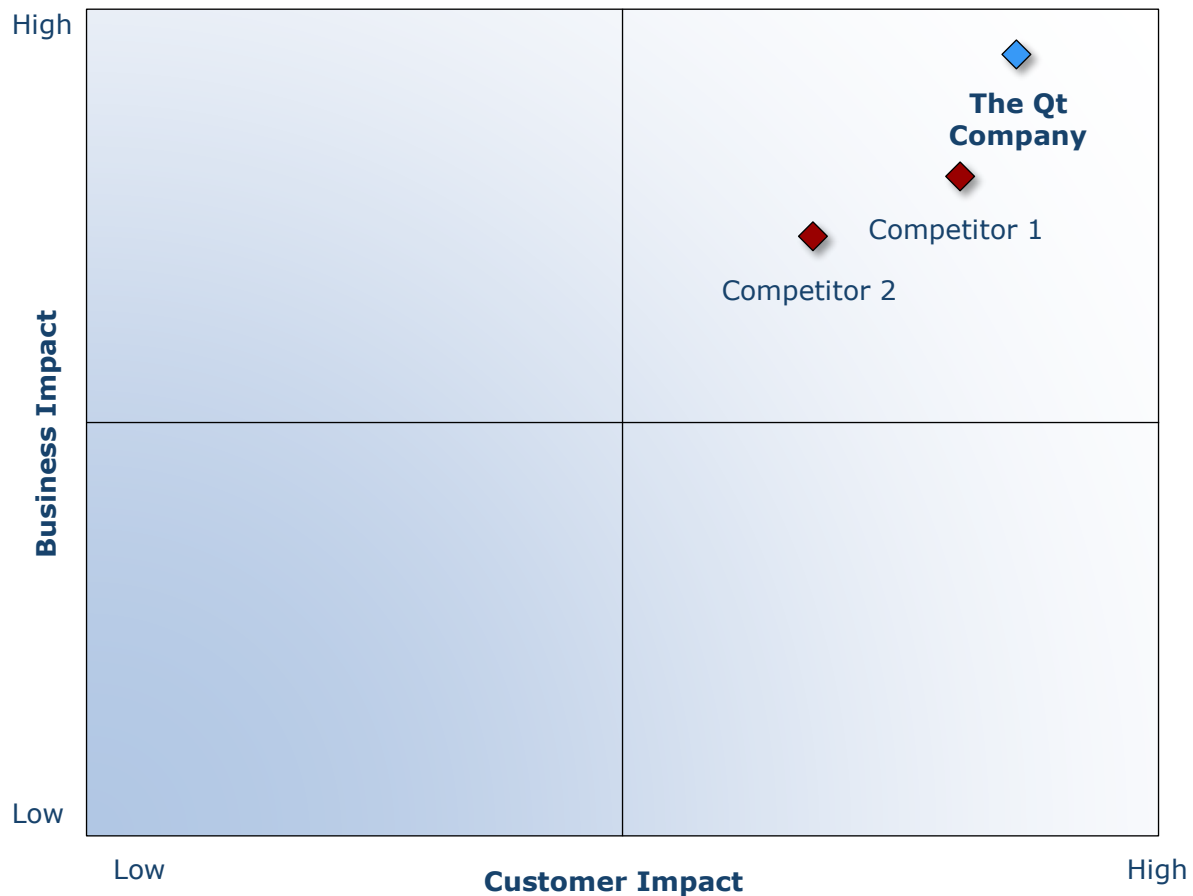
enhances growth potential.

**Criterion 5: Human Capital**

Requirement: Company culture is characterized by a strong commitment to quality and customers, which in turn enhances employee morale and retention.

*Decision Support Matrix*

Once all companies have been evaluated according to the Decision Support Scorecard, analysts then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.



## Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate award candidates and assess their fit with select best practices criteria. The reputation and integrity of the awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 <b>Monitor, target, and screen</b>	Identify award recipient candidates from around the world	<ul style="list-style-type: none"> <li>• Conduct in-depth industry research</li> <li>• Identify emerging industries</li> <li>• Scan multiple regions</li> </ul>	Pipeline of candidates that potentially meet all best practices criteria
2 <b>Perform 360-degree research</b>	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> <li>• Interview thought leaders and industry practitioners</li> <li>• Assess candidates' fit with best practices criteria</li> <li>• Rank all candidates</li> </ul>	Matrix positioning of all candidates' performance relative to one another
3 <b>Invite thought leadership in best practices</b>	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> <li>• Confirm best practices criteria</li> <li>• Examine eligibility of all candidates</li> <li>• Identify any information gaps</li> </ul>	Detailed profiles of all ranked candidates
4 <b>Initiate research director review</b>	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> <li>• Brainstorm ranking options</li> <li>• Invite multiple perspectives on candidates' performance</li> <li>• Update candidate profiles</li> </ul>	Final prioritization of all eligible candidates and companion best practices positioning paper
5 <b>Assemble panel of industry experts</b>	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> <li>• Share findings</li> <li>• Strengthen cases for candidate eligibility</li> <li>• Prioritize candidates</li> </ul>	Refined list of prioritized award candidates
6 <b>Conduct global industry review</b>	Build consensus on award candidates' eligibility	<ul style="list-style-type: none"> <li>• Hold global team meeting to review all candidates</li> <li>• Pressure-test fit with criteria</li> <li>• Confirm inclusion of all eligible candidates</li> </ul>	Final list of eligible award candidates, representing success stories worldwide
7 <b>Perform quality check</b>	Develop official award consideration materials	<ul style="list-style-type: none"> <li>• Perform final performance benchmarking activities</li> <li>• Write nominations</li> <li>• Perform quality review</li> </ul>	High-quality, accurate, and creative presentation of nominees' successes
8 <b>Reconnect with panel of industry experts</b>	Finalize the selection of the best practices award recipient	<ul style="list-style-type: none"> <li>• Review analysis with panel</li> <li>• Build consensus</li> <li>• Select recipient</li> </ul>	Decision on which company performs best against all best practices criteria
9 <b>Communicate recognition</b>	Inform award recipient of award recognition	<ul style="list-style-type: none"> <li>• Present award to the CEO</li> <li>• Inspire the organization for continued success</li> <li>• Celebrate the recipient's performance</li> </ul>	Announcement of award and plan for how recipient can use the award to enhance the brand
10 <b>Take strategic action</b>	Upon licensing, company is able to share award news with stakeholders and customers	<ul style="list-style-type: none"> <li>• Coordinate media outreach</li> <li>• Design a marketing plan</li> <li>• Assess award's role in strategic planning</li> </ul>	Widespread awareness of recipient's award status among investors, media personnel, and employees

## The Intersection between 360-Degree Research and Best Practices Awards

### Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of the research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, resulting in errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.



### About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, helps clients accelerate growth and achieve best-in-class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's growth team with disciplined research and best practices models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages nearly 60 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on 6 continents. To join Frost & Sullivan's Growth Partnership, visit <http://www.frost.com>.

### Copyright

This research is owned by Frost & Sullivan. No part of this research may be disclosed to external parties without formal written permission from Frost & Sullivan. Furthermore, no part may be reproduced, stored in a retrieval system, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording or otherwise—without the written permission of Frost & Sullivan.